ABSTRACT

ERROR CORRECTION CODING AND DECODING IN A SOLID-STATE STORAGE DEVICE

A magnetoresistive solid-state storage device (MRAM) employs error correction coding (ECC) to form ECC encoded stored data. In a read operation, parametric values are obtained from storage cells 16 of the device and compared to ranges to establish logical bit values, together with erasure information. The erasure information identifies symbols 206 in a block of ECC encoded data 204 which, from the parametric evaluation, are suspected to be affected by physical failures of the storage cells 16. Where the position of suspected failed symbols 206 is known from this erasure information, the ability of a decoder 22 to perform ECC decoding is substantially enhanced.

[Figure 1]